

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA**

FILED
FEB - 3 2012
MICHAEL E. KUNZ, Clerk
By: [Signature] Dep. Clerk

TRUEPOSITION, INC.
1000 Chesterbrook Blvd., Suite 200
Berwyn, PA 19312

PLAINTIFF,

vs.

Case No. 2:11-cv-4574 (RK)

LM ERICSSON TELEPHONE COMPANY
(TELEFONAKTIEBOLAGET LM ERICSSON)
SE-164 83
Stockholm, Sweden,

QUALCOMM INC.
5775 Morehouse Drive
San Diego, CA 92121,

JURY TRIAL REQUESTED

ALCATEL-LUCENT USA INC.
600 Mountain Ave.
Murray Hill, NJ 07974,

THIRD GENERATION PARTNERSHIP
PROJECT a/k/a 3GPP
c/o ETSI
650 Route des Lucioles
06921 Sophia-Antipolis Cedex
FRANCE,

and

EUROPEAN TELECOMMUNICATIONS
STANDARDS INSTITUTE
650 Route des Lucioles
06921 Sophia Antipolis Cedex
FRANCE,

DEFENDANTS.

AMENDED COMPLAINT FOR VIOLATIONS OF THE U.S. ANTITRUST LAWS

Plaintiff TruePosition, Inc. (“TruePosition”), by and through undersigned counsel, below states its Amended Complaint against Defendants Telefonaktiebolaget LM Ericsson (“Ericsson”), Qualcomm Inc. (“Qualcomm”), Alcatel-Lucent USA Inc. (“Alcatel-Lucent”), Third Generation Partnership Project (“3GPP”), and the European Telecommunications Standards Institute (“ETSI”). For the convenience of the Court, appended to this Amended Complaint is a Glossary of the acronyms used.

INTRODUCTION AND SUMMARY

1. TruePosition brings this action to end defendants’ conspiracy, in violation of the U.S. antitrust laws, that is foreclosing competition in the markets for products that provide highly accurate locations of mobile cellular devices for public safety, law enforcement and homeland security purposes. This unlawful conspiracy has been carried out by an illegal agreement among Alcatel-Lucent, Ericsson, and Qualcomm (the “corporate defendants”). Pursuant to the conspiracy, the corporate defendants abused the authority granted them in 3GPP, an organization that establishes global standards for mobile telecommunications technologies, including mobile phone location technologies. The corporate defendants have engaged in unlawful concerted and coordinated anticompetitive actions, and repeatedly have violated 3GPP due process rules that are necessary to safeguard fair competition and unbiased standard setting. They thereby have succeeded in excluding a superior location technology from the 3GPP standard for the newest, most advanced “4G” or “LTE” mobile telecommunications networks.
2. In November 2008, upon information and belief, the corporate defendants agreed to prevent standardization of TruePosition’s positioning technology so that their preferred

technologies would attain an insurmountable head start in the relevant markets. Recognizing that independent efforts had failed to prevent U-TDOA standardization for prior generation networks, the corporate defendants needed to collude to achieve their anticompetitive objective. The corporate defendants knew that acting together they could, and would, get away with violating 3GPP due process rules—and they have. They exercised their extraordinary authority as Chairmen of key 3GPP committees overseeing standardization of positioning technologies to approve and facilitate these due process violations, and thereby subvert 3GPP’s due process safeguards. Thus, the success of the conspiracy has depended on the corporate defendants’ combined ability to coordinate actions that violated 3GPP rules and to facilitate those violations by abusing their authority as Chairmen.

3. TruePosition is a leading innovator in developing and marketing high accuracy location products that operate over cellular telecommunications networks. More than 55 million cellular callers in the United States each year are located by TruePosition products, assisting police, fire, and ambulance services in saving lives and enabling law enforcement to combat criminal activity and terrorist threats. Under Federal Communications Commission (“FCC”) regulatory requirements, all mobile voice networks must be able to locate 911 callers. TruePosition’s positioning technology, known as “U-TDOA,” has been successfully deployed on more than 90,000 cell tower sites in the United States to meet the FCC requirements.

4. Inclusion in the 3GPP standard is vital to commercial success. Exclusion from the standard guarantees commercial failure and, in most instances, absolute foreclosure from the market. In the words of one court:

3GPP sets standards throughout the entire wireless communications industry to insure compatibility of equipment. If telecommunications equipment is not

in compliance with 3GPP standards it will not be compatible with the telecommunications networks and other equipment. Accordingly, it will essentially be useless.

Golden Bridge Tech. v. Nokia, Inc., 416 F. Supp. 2d 525, 532 (E.D. Tex. 2006). Thus, 3GPP standardization for the products at issue in this case is “not just a ‘stamp of approval’.” *Id.* It is an absolute prerequisite for open competition. TruePosition’s technology is included in 3GPP standards for earlier-generation “2G” and “3G” mobile communications technology. It is equally well suited to provide high-accuracy positioning in 4G networks.

5. Standardization implicitly is an agreement not to manufacture, distribute, or purchase products that do not follow the standard. *Allied Tube & Conduit Corp. v. Indian Head, Inc.*, 486 U.S. 492, 500 (1988). As a general principle, agreements not to manufacture, distribute, or purchase products violate Section 1 of the Sherman Act. ETSI’s Guidelines for Antitrust Compliance acknowledge: “Agreements between competitors with the object of ... excluding an existing player from the market would be anticompetitive.” It is only permissible for competitors to enter into such otherwise unlawful agreements in the context of standard setting, and only permissible for standard-setting organizations (“SSOs”) such as 3GPP and ETSI to facilitate such agreements among competitors if the organization and its participants strictly follow rules that safeguard fairness, objectivity, and due process: As the Court of Appeals for this Circuit has stated:

[T]hat ‘private standard-setting by associations comprising firms with horizontal and vertical business relations is permitted at all under the antitrust laws [is] only on the understanding that it will be conducted in a nonpartisan manner offering procompetitive benefits,’ and in the presence of ‘meaningful safeguards’ that ‘prevent the standard-setting process from being biased by members with economic interests in stifling product competition,’

Broadcom Corp. v. Qualcomm Inc., 501 F.3d 297, 309-310 (3d Cir. 2007) *citing* *Allied Tube*, 486 U.S. at 501; *Am. Soc. of Mech. Eng’rs, Inc. v. Hydrolevel Corp.*, 456 U.S. 556, 572

(1982). Through their conspiracy, the corporate defendants violated the meaningful safeguards of the 3GPP and ETSI due process rules. They biased the 3GPP processes to gain unfair advantages for the inferior location technologies they preferred, and to prevent or delay standardization of TruePosition's superior technology.

6. Under 3GPP rules and policies, and given U-TDOA's success in earlier generation 2G and 3G implementations, TruePosition's technology should have been rolled into the 4G standards as a matter of course. The same was not true for defendants' technology, which never had been deployed or proven in the market. In fact, products using a prior version of defendants' technology had *failed* to meet FCC requirements—*i.e.*, *failed* to locate callers to 911 with sufficient accuracy—and were replaced by products from TruePosition and others based on U-TDOA. Only by the corporate defendants' concerted efforts to misuse the standard-setting process, and to abuse the authority of 3GPP, have the corporate defendants succeeded in ramming their inferior technology into the 3GPP 4G standard and shutting U-TDOA out. The conspirators thereby have seized a minimum three-year head start for their own technologies in the highly competitive relevant positioning markets, and excluded competition from TruePosition and its superior technology.

7. The only reason U-TDOA was held back while the corporate defendants' inferior technology advanced is because the corporate defendants agreed and worked together to manipulate the 3GPP standard-setting process, and because 3GPP and its Organizational Partner ETSI failed in their duty to ensure compliance with their due process rules. The actions of the defendants violate Section 1 of the Sherman Act.

8. The direct consequence of defendants' conspiracy is that TruePosition, the U-TDOA technology, and other competitors that market U-TDOA-based products, have been

foreclosed from competition for 4G positioning products, and have been harmed in their continued ability to develop and market 2G and 3G products that can be upgraded for 4G networks.

9. TruePosition therefore brings this action to:

- enjoin defendants' conspiracy to foreclose competition in the relevant positioning markets;
- enjoin defendants' continuing abuses of the 3GPP standard-setting process;
- compel 3GPP and ETSI to remedy the anticompetitive effects of defendants' misconduct on the 3GPP standards;
- compel the fair operation of 3GPP standard-setting for positioning technologies;
- remove unfair roadblocks that prevent TruePosition and others from competing in providing positioning technology for 4G and prior generation networks; and,
- obtain treble damages for the harm defendants have caused and continue to cause TruePosition by excluding it from the 4G standards.

THE PARTIES

10. Plaintiff TruePosition is a Delaware corporation having its principal place of business in Berwyn, Pennsylvania. TruePosition competes in the relevant positioning markets through its research, development, manufacture, sale, and maintenance of equipment and software for locating the position of mobile telephone handsets. TruePosition has received 95 patents relating to positioning technology, and has approximately 160 employees and contractors dedicated to research and development. In 2010, TruePosition's sales revenues were

approximately \$146 million. In 2010, TruePosition spent approximately \$25 million on research and development relating to positioning technology. TruePosition participates actively in 3GPP and ETSI.

11. Defendant Ericsson is a multinational corporation headquartered in Stockholm, Sweden that actively transacts business in the United States and in this District, directly and through one or more wholly-owned subsidiaries located in the United States acting as its agent(s). Ericsson is a leader in the development, manufacture, and sale of equipment (and related software) for mobile telephone communications. It is the leading seller of network telecommunications equipment, known as radio access network (“RAN”) equipment, including mobile phone positioning technologies, to U.S. telecommunications carriers. Ericsson holds more than 27,000 patents, and recently has, in a joint purchase with other technology firms, acquired rights to more than 6,000 additional patents from its former competitor Nortel Networks, for a collective price exceeding \$4.5 billion. Ericsson’s holdings include patents relating to LTE and mobile phone positioning technology. It has more than 90,000 employees worldwide, and more than 13,000 of these are employees in North America. In 2010, Ericsson’s sales revenues exceeded \$28 billion. Sales of telecommunications network equipment comprise a majority of Ericsson’s net sales both in the United States and globally.

12. Defendant Qualcomm is a multinational corporation headquartered in San Diego, California that actively transacts business in this District. Qualcomm has a registered agent for the service of process in Pennsylvania. Qualcomm is a leader in the development, manufacture, and sale of semiconductor chips and software, including chipsets and software for mobile phone positioning, for use in mobile telephone handsets. Qualcomm has more

than 88,000 patents, including patents related to mobile phone positioning. Qualcomm has more than 17,500 employees. In 2010, Qualcomm's sales revenues exceeded \$10.9 billion.

13. Defendant Alcatel-Lucent USA actively transacts business in the United States and in this District. Alcatel-Lucent USA Inc. is a wholly-owned subsidiary of Alcatel-Lucent, a company headquartered in France, and has a registered agent for the service of process in Pennsylvania. Alcatel-Lucent was formed in December 2006 by the merger of Alcatel and Lucent Technologies. Per agreement between the parties, references to "Alcatel-Lucent USA" include Alcatel, and Alcatel-Lucent and its subsidiaries (all collectively referred to in this Amended Complaint as "Alcatel-Lucent"). Alcatel-Lucent is a leader in the development, manufacture, and sale of equipment and software for mobile telephone communications. Upon information and belief, it is the second largest seller of mobile RAN equipment to U.S. telecommunications carriers, including equipment for mobile phone positioning. Alcatel-Lucent has more than 27,900 patents, including for mobile phone positioning. Alcatel-Lucent has more than 79,000 employees, more than 18,000 of whom work in North America. In 2010, Alcatel-Lucent's sales revenues exceeded \$21.2 billion.

14. Defendant 3GPP, an unincorporated association, is a not-for-profit SSO located in France. Formed in 1998, the business of 3GPP is fairly and impartially to create global standards for mobile telecommunications technologies based on objective technical merit. The 3GPP standards are designed to be implemented globally through six regional standard-setting organizations, known as Organizational Partners, including defendant ETSI in Europe and the Alliance for Telecommunications Industry Solutions in the United States. The membership of 3GPP comprises hundreds of international companies that participate in 3GPP through their membership in an Organizational Partner. Standard-setting meetings of

the 3GPP are held in various countries of the world, frequently in the United States. 3GPP, through ETSI as described below, is responsible for managing the conduct of its standard-setting activities and assuring that its mandate is properly performed by its participating members. 3GPP is wholly dependent upon ETSI for its organizational and administrative support. Defendants Ericsson, Qualcomm, and Alcatel-Lucent are members of and participate actively in 3GPP, and exert strong influence over 3GPP. In addition to their general industry dominance, these three companies currently control and, in recent years, have controlled the Chairman positions of key committee groups. The corporate defendants also are among the largest financial contributors that support 3GPP operations.

15. Defendant ETSI is a not-for-profit SSO located in France. The membership of ETSI comprises 700 member companies from 62 countries, including 51 members headquartered in the United States. The business of ETSI is, fairly and impartially to create globally applicable standards for information and telecommunications technologies, including for mobile telecommunications. In furtherance of its goal to create globally applicable standards, ETSI has entered into many partnerships, collaborations and agreements with entities located in the United States, including the American National Standards Institute, the U.S. Alliance for Telecommunications Industry Solutions, and the Telecommunications Industry Association. ETSI has also entered into a Memorandum of Co-operation with the Research and Innovative Technology Administration of the U.S. Department of Transportation. On information and belief, these relationships with U.S. entities and at least one governmental agency require ETSI officials and representatives to regularly attend meetings in the United States and to communicate frequently with individuals located in the United States. In addition, ETSI has registered the 3GPP and LTE trademarks in the United States, and ETSI's

permission is required in order for manufacturers, service providers or other persons to use those trademarks in the United States. ETSI permits such use to enhance the marketability of products and services sold or licensed by members of ETSI. ETSI also sells and/or licenses ETSI standards and publications in the United States. On information and belief, ETSI derives revenues from commercial activities conducted in the United States, including without limitation from services provided by Forapolis, Interopolis and/or the Mobile Competence Center. ETSI is one of the Organizational Partners of 3GPP. 3GPP is an ETSI Partnership Project, and ETSI Partnership Projects are part of ETSI's Technical Organization and, therefore, part of ETSI itself. ETSI is the primary provider of office space, staffing, and administrative support for 3GPP. ETSI employees attend virtually every 3GPP meeting acting in an official capacity for 3GPP. ETSI is responsible for managing the conduct of its members in accordance with its Antitrust Guidelines and due process rules and regulations when those members act within ETSI or when they participate in standard-setting activities within 3GPP. Ericsson, Qualcomm, and Alcatel-Lucent, are members of, participate actively in, and exert strong influence over ETSI. The corporate defendants and/or their wholly-owned subsidiaries participate in 3GPP through their membership in ETSI, and hold key leadership roles in ETSI as well as 3GPP.

JURISDICTION AND VENUE

16. This Court has jurisdiction over this matter pursuant to Section 4 of the Sherman Act, 15 U.S.C. § 4, and 28 U.S.C. §§ 1331 and 1337.

17. Venue is proper in this District under Section 12 of the Clayton Act, 15 U.S.C. § 22, and under 28 U.S.C. § 1391. Defendants Ericsson, Qualcomm, and Alcatel-Lucent regularly solicit and transact business within this District, and sell and service telecommunications equipment in this District and in U.S. interstate and foreign commerce.

Individually, each company derives billions of dollars of revenue annually from sales in the United States and, upon information and belief, obtains millions of dollars in sales of equipment and services within this District. Defendants 3GPP and ETSI transact business relating to standard setting with governmental entities, organizations, and companies located throughout the United States, actively solicit membership from companies within this District, including TruePosition, and set telecommunications standards that are intended to affect substantially commerce within this District, and U.S. interstate and foreign commerce.

FACTUAL BACKGROUND

A. TruePosition's Technology and Business

18. From its earliest days to the present, TruePosition has been a highly innovative company that develops technologies and manufactures products that enable public safety, law enforcement, and homeland security agencies to locate the position of cellular telephones. Founded in 1994 as “Associated Radio Location Tracking, Inc.,” TruePosition first began developing location products for analog mobile phones and a “2G” digital phone technology used in the United States. TruePosition devotes substantial resources annually to research and development for positioning technology. It began obtaining patents for its positioning technology inventions in 1994, and has continued to innovate and to obtain patents for new and enhanced location technologies. In 2001, TruePosition signed its first sales contracts to deploy positioning products in the United States. By 2002, TruePosition had developed U-TDOA-based products that potentially could interface with 2G networks.

19. TruePosition sells high accuracy positioning and networking technology as a standalone Location Measurement Unit (“LMU”). These standalone LMUs are collocated with, and must interoperate with, the RAN equipment at a cell tower site, but are separate from the RAN equipment.

20. The ability of an LMU to interoperate with multiple vendors' RAN equipment therefore is crucial to the ability of TruePosition (and other LMU vendors) to compete in the markets for positioning equipment. For that reason, beginning in the late 1990's, TruePosition began participating actively in organizations that set interoperability standards for mobile telecommunications, including ETSI and 3GPP.

21. TruePosition markets a "universal" LMU. The TruePosition universal LMU is used to determine locations of mobile phones on networks for 2G mobile telecommunications technology, known as Global System for Mobile Communications ("GSM"), and/or 3G mobile phone networks based on the 3GPP standard known as "UMTS." These universal LMUs also can be adapted through software modifications to determine cellular device locations on LTE networks. By purchasing the universal LMU, TruePosition's customers can maximize their investments in positioning hardware by using the same LMU hardware for current and future networking technologies. The use of standalone universal LMUs also makes it possible for carriers to upgrade their positioning technologies more quickly and inexpensively than through the modification of positioning technology embedded in RAN equipment. Because LMUs work in tandem with the network equipment, no upgrade would be needed to the phones.

22. The primary use for TruePosition's high accuracy positioning technology in the United States is to locate mobile phones that call emergency services such as E-911. According to the FCC, nearly 70 percent of all E-911 calls originate from mobile phones. FCC regulations require mobile carriers such as AT&T Wireless ("AT&T"), Verizon Wireless, T-Mobile, and Sprint to provide for increasingly accurate location of mobile handsets that call E-911 services. Beginning October 2001, these carriers have been required

to transmit all E-911 calls to a Public Safety Answering Point (“PSAP”) along with the telephone number of the caller, and the phone’s location by latitude and longitude to specified levels of precision and reliability. The FCC recently promulgated regulations imposing equivalent precision and reliability for handset and network-based positioning, and has been considering whether to adopt regulations specific to the location of indoor callers. Carriers that do not satisfy FCC requirements are subject to enforcement proceedings and fines. TruePosition’s U-TDOA technology meets current FCC requirements, can meet the recently-announced future FCC requirements, and is uniquely adapted to provide indoor location.

23. Homeland security and law enforcement needs define a second use for sophisticated high accuracy positioning technology. Authorities in the United States have used TruePosition’s U-TDOA technology to locate individuals suspected of engaging in criminal activities such as kidnapping, drug trafficking, border violations, and terrorism.

24. TruePosition’s U-TDOA method is implemented in LMUs located at multiple cell towers. Multiple LMUs measure the difference in the time they receive signals sent over the cellular network by a handset (referred to as the “uplink” transmission). These measurements enable calculation of the distance of the handset from each cell tower. By collecting multiple measurements, the handset location can be narrowed to within FCC requirements. No special signals from the handset are necessary. No special hardware or software is needed in the handset. And no calculations are performed by the handset.

25. U-TDOA has several important advantages over other location technologies. First, the technique is highly accurate. U-TDOA timing measurements are very precise. U-TDOA alone provides a high level of accuracy that reliably meets the FCC regulatory requirements.

26. Second, U-TDOA can successfully locate mobile handsets indoors and in challenging urban environments that satellite-based technologies cannot reach. This is necessary to meet FCC requirements.

27. Third, there are several advantages to performing all positioning calculations in network equipment (and not in the handset, as with satellite-based technologies or the defendants' technology). U-TDOA can locate any phone, including phones that do not incorporate positioning technology. U-TDOA also can locate phones that are turned on but not in active use. For these reasons, U-TDOA is more useful than handset-based technologies for locating victims in large scale events such as natural disasters. U-TDOA positioning capabilities also can be upgraded more easily and less expensively through changes to the standalone LMUs, rather than by upgrading hardware or software in hundreds of millions of phones or forcing consumers to purchase new phones.

28. Similarly, U-TDOA provides homeland security and law enforcement agencies with clear advantages over handset-based positioning. Handsets can detect when they are being located. Positioning technology in a handset can be disabled to thwart detection, or manipulated to provide false location information (known as "spoofing"). Because U-TDOA does not rely on calculations from the handset, it cannot be detected or disabled by the handset user, and is immune to spoofing by the handset.

29. The technology promoted by the defendants, known as "O-TDOA," has none of these advantages. O-TDOA is handset-based. The handset calculates its location based on the difference in timing between signals received over a cellular network from several cell towers (referred to as the "downlink" transmission). As a result, O-TDOA requires

specialized hardware and software of the type manufactured by Qualcomm in every handset, as well as in RAN equipment of the type manufactured by Ericsson and Alcatel-Lucent.

30. Upon information and belief, Ericsson and Qualcomm each hold patents that are essential to the implementation of O-TDOA.

31. Upon information and belief, O-TDOA-based positioning equipment has not been successfully deployed commercially.

32. The superiority of U-TDOA was demonstrated in 2G and 3G networks. Major United States mobile carriers attempted in 1999-2001 to implement a predecessor of the O-TDOA technology, known as "E-OTD," but found that it failed to locate 911 callers to the level of accuracy required by FCC regulations. As a result, these carriers faced millions of dollars in fines from the FCC. The carriers rectified this failure by implementing U-TDOA products from manufacturers, including TruePosition and Andrew Corporation, in LMUs collocated with RAN equipment.

B. The Inherently Collusive Nature of SSOs for Mobile Phone Services, and the Due Process Rules that Must be Observed to Protect Them Against Antitrust Liability

33. Defendants 3GPP and ETSI are SSOs that develop standards for advanced wireless and mobile telecommunications services. 3GPP sets global standards. The 3GPP standards are promulgated by all 3GPP Organizational Partners, including ETSI. Thus, the global standards developed by 3GPP directly affect the potential economic prosperity or failure of businesses and entire segments of the mobile telecommunications industry worldwide, and have a serious potential for anticompetitive harm.

34. Standardization at least implicitly constitutes an agreement not to manufacture, distribute, or purchase products that do not follow the standard. *Allied Tube*, 486 U.S. at 500. Such agreements among competitors as a general rule violate Section 1 of the Sherman Act.

Because private standard setting relies on agreements among actual and potential competitors, it has the inherent propensity for unlawful collusion. That is why SSOs historically have been objects of antitrust scrutiny. *Id.* Private standard setting by associations comprising firms with horizontal and vertical business relations is *only* permitted under the antitrust laws *if* it is conducted in a fair, objective, nonpartisan manner ensuring due process for all participants. *Broadcom v. Qualcomm*, 501 F.3d at 309-310 (citations omitted). The antitrust validity of standard-setting efforts thus depends upon the existence of, and strict compliance with, meaningful due process safeguards sufficient to prevent concerted actions to bias the standard-setting process in a manner that unfairly favors members having economic interests in restraining competition. *Id.* SSOs and their members have been held liable under U.S. antitrust laws where SSO due process safeguards have been violated and their processes have been abused by collusion among powerful participants to facilitate anticompetitive conduct against smaller innovative companies.

35. To avoid antitrust liability, therefore, 3GPP and ETSI, like all SSOs, must follow two fundamental requirements. First, standard setting must be based on objective technical merit of the technologies under consideration. Second, 3GPP and ETSI must follow due process policies, procedures, and rules for development of the 3GPP standards so as to ensure fairness in the process and compliance with antitrust and other laws (the “SSO Rules”). The SSO Rules include the following requirements:

- a. Technologies provided for in existing standards should be provided for in future standards, particularly where the technologies already have been deployed and are clearly applicable to the future work. *See* 3GPP Scope and Objectives for Third Generation Partnership Project Agreement at 2.3 (Aug. 31, 2007).

- b. Technical work should proceed in a transparent manner according to specific rules and procedures. ETSI Guidelines for Antitrust Compliance, C.2.1-C.2.2.
 - c. Chairmen are responsible to conduct meetings in accordance with policies and procedures; to maintain strict impartiality and act in the interests of the organization and its members; and not to conduct these procedures so as to bias or favor the business interests of a company they represent. *See*, 3GPP Working Procedures, Art. 23; ETSI Technical Working Procedures, 1.3.3; ETSI Guidelines for Antitrust Compliance, D.1.2 and D.1.4.
 - d. Technical contributions on which decisions will be based must be distributed to the Working Group members sufficiently in advance of meetings. *See* 3GPP Working Procedures, Art. 25. This rule ensures to all participants a full and fair opportunity to review, consider, and prepare any responses or oppositions to a proposal. Without this rule, a group of participants could railroad through the 3GPP process work items that bias the standard in favor of their interests or against the interests of their competitors.
 - e. The 3GPP specifications must provide technology options to satisfy regulatory requirements of one or more nations or regions, without debate over the inclusion or rejection of such options. *See* 3GPP Working Procedures, Art. 3.
36. To achieve their objective, the corporate defendants needed not only to violate these 3GPP rules, but to do so collusively because defendants shared control of the necessary decision points, and because the decisions had to occur at a particular time and sequence. The structure of 3GPP presents rife opportunities for such unlawful collusion. The 3GPP organizational structure relies on a Radio Access Network Technical Specification Group

(“RAN TSG” or “RAN Plenary”) to create technical documents, known as “Specifications,” for the structure and operation of RAN networks and equipment. The RAN TSG consists of five Working Groups (RAN1 through RAN5), each covering different aspects of the network, that perform the technical work of evaluating proposed work items and developing the draft Specification. Typically, work proposals progress sequentially, from lower-to-higher numbered Working Groups, through those Groups having responsibilities for specifications affected by the proposal. Working Groups cover a wide range of technologies, such that many members do not have an actual interest in all work undertaken by a Group. Working Groups typically meet monthly throughout the year, either separately or in conjunction with the TSG Plenary meetings. These meetings occur over a period of five days. The meetings are scheduled so as to rotate among different cities and various continents. The meetings include significant break times which allow for private discussions among members (including competitors) during the meeting day, as well as time for private discussions outside the meeting rooms. Additional private discussions among such members occur regularly via private email, telephone, and Skype. The Chairmen of the Plenary and Working Groups meet regularly, and privately, to determine and discuss the progress of work.

37. Proposals to include technology features in the 3GPP standards (known as “work items”) initially are created through private discussions among members of a Working Group outside the formal meeting context. The 3GPP rules that require work item proposals and other submissions to be submitted timely in advance of 3GPP meetings are intended to remedy the inherently collusive and potentially anticompetitive nature of such private agreements by giving all competitors a full and fair opportunity to review, consider, and respond to those proposals. A work item proposal must list the support of at least four

members to be considered by the Plenary, although work item proponents often have a longer list including companies that have no direct interest in the outcome or do not intend to contribute work to the project.

38. Updates to 3GPP Specifications are issued sequentially in a series of “Releases.” The technologies and methods set forth in each Release may build upon or add to a prior Release. Once a Release is completed by 3GPP, it is adopted and promulgated as a standard by 3GPP’s regional Organizational Partners, including ETSI.

39. The RAN TSG has a Chairman and generally three Vice Chairmen, and each RAN Working Group has a Chairman and generally two Vice Chairmen. The Chairman of the Plenary and of each RAN Working Group has extraordinary authority to determine which technologies will be included in the Specification, and the order in and speed at which each element of the Specification must be drafted, reviewed, simulated, and completed. A Chairman acting in collusion with other Working Group members and with the Chairmen of other Groups can exert significant control over which technologies become part of the standard and, by virtue of their inclusion, have an opportunity to compete and succeed in the marketplace. Therefore, a Chairman has the duty and obligation to strictly and impartially enforce the 3GPP due process rules and procedures so as to ensure that 3GPP standardization, at every stage, remains fair and unbiased. As a corollary, a 3GPP member only can get away with violating 3GPP due process rules with the agreement and sanction of a Chairman.

40. Chairman positions are almost exclusively filled by representatives from major multinational telecommunications equipment manufacturers, such as the corporate defendants. Those companies act as suppliers to or purchasers from virtually every other 3GPP member company. Thus, the inherent authority of a Chairman within the SSO

bureaucracy is further strengthened by the economic clout his or her company wields over the other 3GPP members.

41. At relevant times, representatives of Ericsson, Qualcomm, and Alcatel-Lucent held key positions of Chairman of each RAN TSG and Working Group that made crucial decisions concerning the standardization of the positioning technologies at issue in this case:

- a. The System Architecture task force to create the technical foundation for adopting *any* positioning technology in a 4G network was led by Stephen Edge, a Qualcomm representative.
- b. The RAN Plenary was chaired by an Alcatel-Lucent representative in the December 2008 and March 2009 meetings described below.
- c. The RAN1 Working Group was chaired by an Ericsson representative through September 2009; and thereafter by an Alcatel-Lucent representative.
- d. The RAN2 Working Group has been chaired by an Ericsson representative since September 2011.
- e. The RAN3 Working Group has been chaired by a Qualcomm representative since August 2009. An Ericsson representative is the RAN3 Vice Chairman.
- f. An Ericsson representative has been Chairman, or one of four members of the leadership, of the Project Coordination Group, which is the highest decisionmaking body in 3GPP.

The corporate defendants thus controlled the Chairmanships of, and had key members in, every committee essential to progress the corporate defendants' positioning work item. They therefore collectively wielded the power to obstruct TruePosition's superior U-TDOA technology. As described below, the corporate defendants could not have foreclosed U-

TDOA standardization and secured an insurmountable head start for O-TDOA, except by coordinating their violations of 3GPP rules and procedures at key points in the standardization process, and permitting those violations through their authority as Chairmen.

C. The Unsuccessful Unilateral Efforts of Ericsson and Alcatel-Lucent to Keep U-TDOA Out of Early Positioning Standards

42. In the late 1990s, a European-based ETSI standard for 2G GSM mobile telecommunications technology was proliferating throughout Europe and was beginning to be adopted by several major U.S. carriers. Positioning for GSM at that time was dominated by a few large companies, including Ericsson, Alcatel-Lucent and Qualcomm. These vendors favored E-OTD positioning technology for several reasons. First, upon information and belief, at least Ericsson and Qualcomm held patents that were essential to the E-OTD technology, for which they could collect substantial royalties if E-OTD were included in the standards. Second, because the 3GPP standards did not enable standalone E-OTD products, Ericsson and Alcatel-Lucent could incorporate E-OTD positioning within their RAN equipment and thereby prevent competition from standalone LMU vendors. They thus could dominate the positioning market and command higher prices for their RAN equipment.

43. The E-OTD technology offered by Ericsson, Alcatel-Lucent, and Qualcomm, and deployed by major U.S. carriers in 1999-2001, was a failure. Despite reassurances by those equipment vendors that their products could be made compliant, E-OTD did not meet FCC regulatory requirements. As a result, major U.S. carriers that had heavily invested in GSM RAN equipment faced millions of dollars in fines from the FCC for failing to meet deadlines to implement E-911 mobile phone location. These carriers needed to find an alternative positioning technology that could satisfy their E-911 obligations.

44. These carriers turned to the standalone U-TDOA products offered by TruePosition and Andrew Corporation. However, no ETSI standard specified the method for interoperability with U-TDOA technology. In the absence of a standard, TruePosition created a “work-around” solution so that its LMUs could obtain from the GSM RAN equipment two necessary pieces of information: the precise time when the E-911 call was placed, and the radio channel information used by the handset to place that call. Ericsson and Alcatel-Lucent independently opposed TruePosition’s efforts.

45. This “work-around” was successful, but costly for the carriers. Therefore, the carriers required their RAN vendors, primarily Ericsson and Alcatel-Lucent, to join with TruePosition in a “U-TDOA System Study Group” to create a standard interface for TruePosition’s LMUs to interoperate with the RAN equipment. Within approximately one year, the group completed and brought the work to ETSI. By 2004, U-TDOA was included in the ETSI standard for GSM, including standalone LMUs.

46. The standard for the next generation of mobile phone technology, UMTS or “3G,” was created by 3GPP. At the insistence of AT&T, which wanted the ability to use TruePosition LMUs with UMTS, another study group was formed in 2004. Ericsson and Alcatel-Lucent, upon information and belief acting independently, opposed inclusion of U-TDOA in the 3GPP standards for 3G. Despite their opposition, by 2005—in approximately 18 months—U-TDOA was incorporated in the 3GPP standard for UMTS, including standalone LMUs. Their opposition failed in large measure because, at that time, 3GPP considered the proposed U-TDOA positioning standards in a manner consistent with fair and objective standard setting. Upon information and belief, Ericsson and Alcatel-Lucent did not coordinate their efforts or otherwise act collusively in pursuit of their opposition.

47. U-TDOA in a standalone implementation has been included in 3GPP standards for GSM and UMTS systems beginning with Release 6 in 2005, and has been successfully deployed in standalone LMUs in the United States and in other countries of the world. TruePosition and other companies have successfully marketed U-TDOA-based standalone products in the United States for public safety E-911 uses, and in other countries of the world for security and law enforcement uses. In the United States, two major carriers (AT&T Wireless and T-Mobile) have implemented TruePosition LMUs at approximately 90,000 cell sites. These LMUs locate more than 55 million E-911 callers each year, helping police, fire, and rescue teams to effectively combat crime and save many thousands of lives.

DEFENDANTS' CONSPIRACY TO FORECLOSE U-TDOA STANDARDIZATION IN 4G LTE

A. Introduction

48. U-TDOA technology is equally applicable to LTE systems. There is no technological reason why U-TDOA in a standalone LMU configuration cannot interoperate with RAN equipment for an LTE network. However, because of the different architecture of LTE networks, the “work-around” that enabled U-TDOA standalone implementations without standardization is not possible for LTE network equipment. Thus, 3GPP standardization for U-TDOA is necessary for standalone LMUs on an LTE network. Exclusion from the 3GPP standard for LTE would render U-TDOA useless for 4G networks, and make upgradable universal LMUs, such as those sold by TruePosition, virtually unmarketable for 2G and 3G networks.

49. Under 3GPP policies, given the prior standardization of U-TDOA, the proven effectiveness of U-TDOA to meet regulatory standards, and its marketplace success, it should have been a foregone conclusion that U-TDOA in standalone implementations also would be

included in 3GPP Release 9, which was the first release intended for actual deployment of LTE systems. Similarly, any standardization work for U-TDOA for 4G should have progressed and been completed at least as quickly as standardization of U-TDOA for GSM and UMTS, *i.e.*, within approximately 12-18 months. The reason that U-TDOA standardization has not occurred, now some three years later, is that defendants Ericsson, Qualcomm, and Alcatel-Lucent, are acting with unity of purpose, a common design and understanding, and pursuant to an agreement to exclude or delay U-TDOA from the 3GPP LTE standards. They have succeeded only through coordinated actions—by colluding to violate the SSO Rules and to sanction and facilitate those violations as Chairmen of crucial 3GPP committees.

B. The Corporate Defendants' Agreement and Conspiracy to Exclude U-TDOA from Release 9 and the 3GPP Standards

50. Release 8 of the 3GPP standards was the first specification addressing 4G LTE networks. However, Release 8 did not include any positioning method. Work needed to be done by the 3GPP System Architecture group to lay the technological foundation to provide for positioning in 4G networks.

51. In 2008, the System Architecture group SA2 began work to lay that foundation. The positioning discussions were led by Stephen Edge of Qualcomm. The rapporteur for the effort was a representative of Polaris Wireless, which manufactures standalone location equipment using a technology other than U-TDOA. TruePosition actively participated in that effort so as to ensure that a sound technological foundation would be established for U-TDOA positioning for 4G LTE. The group understood that its work was a necessary precursor to the initiation of a positioning work item as it provided the “high-level” structure

for subsequent specific positioning items, and that it would not complete its work before March 2009.

52. Upon information and belief, in approximately November 2008, before the SA2 work was complete, Qualcomm, Ericsson, and Alcatel-Lucent agreed to privately prepare their own work item to include specific positioning technologies in Release 9 of the 3GPP standards. The work item was written by Stephen Edge of Qualcomm.

53. Upon information and belief, Qualcomm's early draft of this work item proposed to include U-TDOA in the standardization effort. Upon information and belief, Ericsson and Alcatel-Lucent told Qualcomm that they would not support the work item if U-TDOA was included, and insisted that U-TDOA be removed from the draft. Upon information and belief, as evidenced by the text of the work item submission, Qualcomm acceded to their demand.

54. The SA2 group met for several days in November 2008 to continue the foundational work for positioning. Although the work item excluding U-TDOA already had been drafted, Edge kept secret the existence of the draft work item and its text from the SA2 group as a whole and specifically from TruePosition. A TruePosition representative had one or more one-on-one conversations with Edge regarding positioning during the course of those SA2 meetings, yet Edge never disclosed to her the existence of the draft or the corporate defendants' intention to submit a work item on positioning. Upon information and belief, Qualcomm, Ericsson, and Alcatel-Lucent intended, understood, and agreed that the intention and text of the draft would not be shared with TruePosition or other U-TDOA equipment manufacturers because the corporate defendants intended to use the work item in an effort to exclude or delay standardization for U-TDOA.

55. The draft work item contained a background section that described the “Justification” for the work item. The “Justification” explained that positioning technologies, including U-TDOA, “have historically been useful and even essential to act as a backup to A-GPS in regions where emergency calls are subject to strong regulation.” The draft emphasized that regions other than the United States were adopting regulatory requirements for positioning, and so the objective should be to define explicit positioning support for LTE that was as good, and potentially better, than positioning already provided for GSM and other wireless technologies.

56. Although the draft acknowledged that U-TDOA technology is capable of meeting those regulatory requirements, of all the technologies listed in the “Justification” section only U-TDOA was omitted from the section of the document that proposed the technologies to include in the 3GPP standards. Upon information and belief, the corporate defendants intentionally left the discussion of the importance of U-TDOA in the “Justification” at the beginning of the document to lull potential supporters into believing that the work item included standardization for U-TDOA.

57. At the December 2008 RAN Plenary #42 in Athens, Greece, the Plenary group met to determine features to be included and prioritized for Release 9. On the first day of the meeting—several days after the deadline for making technical submissions—Qualcomm submitted the “work item” proposing to include positioning technologies in the LTE standard. This late submission violated 3GPP rules.

58. Upon information and belief, it was not necessary for the corporate defendants to submit the proposed work item late. The work item was essentially complete by the end of the SA2 meetings—some ten days before the Plenary meeting was to begin, and several days

before the submissions deadline. Given that the corporate defendants held key Chairmen positions within 3GPP, and had knowledge of and responsibility for enforcement of 3GPP due process rules, their violation of the 3GPP rules had to be intentional, and was intended by the corporate defendants to deny TruePosition and others the fair opportunity required by 3GPP rules to consider, review, and/or respond to the proposal.

59. Upon information and belief, the late submission was agreed to by the corporate defendants; and, to succeed, it had to be done by agreement. Under 3GPP rules, a Chairman must defer consideration of late submissions that prejudice 3GPP members and unfairly favor others. Had 3GPP's due process rules been followed, the corporate defendants should not have gained any advantage by a dilatory filing. Notwithstanding, the corporate defendants could get away with this violation of the rules and have the work item accepted only because the Chairman of the RAN Plenary—a senior employee of Alcatel-Lucent—had the power to refuse any objection based on the lateness of the submission by a Qualcomm representative. Upon information and belief, the corporate defendants understood and agreed the Alcatel-Lucent Plenary Chairman would accept the late proposal—which he did.

60. TruePosition and other companies were ambushed by the submission. TruePosition and, upon information and belief, other companies had anticipated and understood that technologies already standardized in 3G would be rolled into the 4G standards once the SA2 foundational work was completed in or around March 2009, and that any positioning work items for new technologies (such as O-TDOA) would only then be ripe for submission. TruePosition was surprised given that Stephen Edge, who led the SA2 effort to create the foundation for LTE positioning, never mentioned the possibility of an imminent work item submission in either open sessions or private discussions around the SA2 meetings just 10

days earlier. Moreover, TruePosition was taken by surprise by the obvious deliberate violation of basic 3GPP submission rules by the corporate defendants.

61. In accordance with the agreement among the corporate defendants, the submission included U-TDOA and other technologies as a Justification for the effort, but excluded only U-TDOA from the proposed standardization work. The exclusion of U-TDOA from the proposal was deliberately intended by Ericsson, Qualcomm, and Alcatel-Lucent to preclude or delay U-TDOA standardization for 4G LTE, and to seize a first mover advantage for technologies in which those companies held substantial patent portfolios and business interests. This exclusion was all the more egregious and anticompetitive in that U-TDOA has been commercially successful, widely deployed, and demonstrably has met FCC positioning requirements. By contrast, the O-TDOA technology proposed in the submission was not only an unproven technology with no extant commercial implementations—it was derived from the failed E-OTD technology that was replaced in the United States with TruePosition's U-TDOA-based LMUs. The deliberate exclusion by a group of competitors, acting in concert, of a competing superior technology for reasons unrelated to the merits of that technology, through the violation of procedural safeguards, is precisely the kind of SSO activity that the Third Circuit and the Supreme Court have cautioned against and condemned.

62. The work item submission listed nine supporting companies in addition to the corporate defendants. Of those nine companies, at least two had no business interests in the United States and, thus, had no interest in deploying either U-TDOA or O-TDOA to satisfy FCC positioning regulations. Upon information and belief, several of the companies were interested primarily, if not exclusively, in deployment of satellite-based positioning for commercial purposes, and had no interest in either U-TDOA or O-TDOA.

63. AT&T Wireless, and upon information and belief other companies, lent support to the work item because they mistakenly believed that the work item sought to standardize the technologies listed in the Justification section as “useful and even essential,” specifically including U-TDOA. It was not until after the corporate defendants submitted the work item to the Athens meeting that AT&T representatives learned that the work item excluded U-TDOA standardization.

64. On the day that the work item was to be considered by the Plenary, representatives of AT&T, Polaris Wireless, and TruePosition convened a meeting with a representative of Qualcomm. The representative of AT&T told the Qualcomm representative that AT&T wanted U-TDOA added to the work item. The Qualcomm representative refused the AT&T request. His sole stated reason was that major companies that had signed on to the work item would oppose any work item including U-TDOA. Upon information and belief, Ericsson and Alcatel-Lucent were “major companies” referenced by the Qualcomm representative.

65. AT&T is a major purchaser of Ericsson and Alcatel-Lucent RAN equipment, and a major seller of mobile phones that use Qualcomm chipsets. Upon information and belief, the corporate defendants understood they could collectively refuse AT&T’s request because by acting together they wielded sufficient power in the marketplace to avoid serious commercial repercussions from a major customer that they otherwise would face acting alone.

66. In the meeting, when the Chairman from Alcatel-Lucent brought up the corporate defendants’ work item, the TruePosition representative asked, as the 3GPP rules provide, to defer discussion of defendants’ submission due to the prejudicial non-compliance with the submissions deadline. A representative from Polaris supported the request for deferral due to that non-compliance; and, because SA2 had not completed its foundational work, he stated

that the proposal was premature. The Chairman from Alcatel-Lucent refused TruePosition's and Polaris's requests for deferral. To the contrary, in furtherance of the agreement with Qualcomm and Ericsson, the Chairman from Alcatel-Lucent made the submission the sole focus of further discussion of positioning technologies at that meeting.

67. The TruePosition representative then proposed to add U-TDOA to the work item. The Chairman again, pursuant to the corporate defendants' agreement, refused TruePosition's request. The reasons given for excluding U-TDOA (*i.e.*, alleged complexity and potential delay) were baseless, sham, and pretextual. O-TDOA was unproven, more complex, and would require extensive new engineering work in the LTE standards. All the proven U-TDOA technology required for standalone implementations was a method to deliver to the LMU the time and channel of the E-911 call, as had been done in both the 2G and 3G standards.

68. The actions of the Alcatel-Lucent Chairman, in furtherance of the agreement among the corporate defendants, violated the 3GPP safeguards against unfair and biased conduct. Adherence to due process required him to defer the dilatory submission, and to act impartially so as not to conduct the meeting in furtherance of an agreement among the corporate defendants to favor one positioning technology submission to the prejudice of other proposals.

C. The Corporate Defendants' Continuing Efforts to Exclude or Delay U-TDOA Standardization

1. March 2009: The Corporate Defendants Delay and Thwart TruePosition's U-TDOA Work Item.

69. At the March 2009 RAN Plenary #43 in Biarritz, France, the corporate defendants furthered the conspiracy by erecting additional roadblocks to progress for U-TDOA.

TruePosition submitted a proposal to add U-TDOA to the positioning work item that the

corporate defendants had forced through at the December 2008 RAN Plenary. AT&T was among the companies that supported that proposal. But pursuant to their conspiracy, the corporate defendants actively opposed TruePosition's proposal, and the Alcatel-Lucent Chair rejected it.

70. TruePosition then proposed a separate work item for U-TDOA standardization. The proposal again was supported by AT&T, among others. TruePosition proposed to assign its separate U-TDOA work item to the RAN2 Working Group, because the work item affected RAN2 Working Group specifications, but affected no RAN1 Working Group specifications. The RAN2 Working Group, however, at that time was chaired by an employee of a company that was neutral toward the various positioning technologies, and not an employee of the corporate defendants. Upon information and belief, in furtherance of the conspiracy, the corporate defendants sought to ensure that work on U-TDOA would proceed before committees that collectively they controlled, so they could derail any separate work item for U-TDOA. Therefore, notwithstanding that the TruePosition work item properly belonged in the RAN2 Working Group, Ericsson proposed at the RAN Plenary that the TruePosition work item be assigned to the RAN1 Working Group chaired by an Ericsson representative. Under 3GPP due process rules, an objective RAN Plenary Chairman would be required to assign TruePosition's work item to the RAN2 Working Group. However, in furtherance of the conspiracy, the RAN Plenary Chairman from Alcatel-Lucent overruled any objections to Ericsson's proposal, and assigned the work item to the RAN1 Working Group that Ericsson chaired. Absent this coordination, the corporate defendants could not have assured control over the progress of the two positioning work items, so as to delay standardization of U-TDOA and guarantee a significant head start to O-TDOA in the relevant markets.

71. Once the assignment to RAN1 was secured, the corporate defendants continued in furtherance of the conspiracy to coordinate additional due process rules violations against U-TDOA and TruePosition. At the Biarritz meeting the Ericsson RAN1 Chairman proposed two rigorous restrictions on the U-TDOA work item that were not imposed upon O-TDOA:

- a. He required TruePosition to prove that U-TDOA would deliver added benefits over other positioning technologies in order to be considered for inclusion in the LTE standard. To TruePosition's knowledge, no other positioning technology had been required to demonstrate benefits superior to other technologies in order to be included in the standards. To the contrary, 3GPP practices provide for standardization of alternative methods so as to afford carriers an implementation choice, particularly for "optional" features like positioning (*i.e.*, features that were required for some, but not all, nations' networks). The GSM and UMTS standards provided for multiple alternative positioning technology, including U-TDOA.
- b. He further delayed any work on the U-TDOA work item until June 2009. Upon information and belief, it was not mere coincidence that Ericsson proposed the same delay that Alcatel-Lucent previously had requested privately from TruePosition. Upon information and belief, Ericsson proposed this delay in coordination with Alcatel-Lucent.

These unfair and unprecedented restrictions proposed by the Ericsson RAN1 Chairman, unfairly targeting only U-TDOA, were approved and imposed by the Alcatel-Lucent RAN Plenary Chairman in furtherance of the defendants' conspiracy first implemented in Athens. Thus, through their coordinated conduct, the corporate defendants were able to further delay and potentially preclude 3GPP from including U-TDOA in the LTE standard.

2. *June-September 2009: The Corporate Defendants Accelerate O-TDOA, and Further Hold Back U-TDOA Standardization.*

72. In furtherance of the conspiracy, Ericsson exploited its position as RAN1 Chair to erect additional unfair barriers against U-TDOA standardization. To begin the evaluation of U-TDOA at the June-July 2009 RAN1 Working Group meeting in Los Angeles, California, TruePosition timely submitted a list of “simulation” testing assumptions representing a reasonable range of field conditions for U-TDOA. Based on suggested technical refinements to those assumptions accepted by TruePosition, TruePosition conducted extensive and burdensome simulations that demonstrated the ability of U-TDOA to meet that set of requirements. All these simulations showed U-TDOA for 4G was capable of meeting FCC requirements, as it had been doing for 2G and 3G networks.

73. But each time TruePosition brought to the RAN1 Group new simulation results proving the accuracy of U-TDOA under the requested assumptions, the Chairman from Ericsson insisted that the last requested assumptions were insufficient, and made them more stringent. In September 2009, in spite of consistently positive simulation results for U-TDOA, the RAN1 Chair from Ericsson ruled that U-TDOA could not progress beyond an “evaluation” stage. Upon information and belief, the Ericsson RAN1 Chair knew that the corporate defendants intended to submit flawed and pretextual simulations in future meetings as a further tactic to defeat or impede U-TDOA standardization.

74. No other positioning technology was subjected to these sham restrictions. Any reasons given for foisting these additional restrictions on U-TDOA were pretextual.

75. Despite delaying standardization of U-TDOA, Ericsson, Qualcomm, and Alcatel-Lucent still were unable to meet their own proposed completion date of June 2009 to finish the evaluation of O-TDOA.

76. Technical tests simulating how O-TDOA would perform yielded inexplicably inconsistent results. Several companies were unwilling to approve progress for O-TDOA due to unresolved technical issues. Nevertheless, the Ericsson Chairman, with the support of the other corporate defendants, ignored the protestations and rammed through the RAN1 Working Group the changes to support O-TDOA. Ericsson thereby sealed accelerated treatment of O-TDOA to secure its inclusion in Release 9.

3. *October-December 2009: The Corporate Defendants Use Sham Submissions and Manipulate their Authority as Chairmen, as Pretexts to Thwart U-TDOA.*

77. In the October 2009 RAN1 Working Group meeting #58-bis in Miyazaki, Japan, TruePosition still was the only company to submit U-TDOA simulations for this meeting. However, just 12 hours before the U-TDOA session was to begin, and some eight days past the deadline for any submissions, Ericsson submitted to the RAN1 Group a report regarding U-TDOA on subjects outside the purview of RAN1. Ericsson used the report as an excuse to further delay RAN1 consideration of U-TDOA by insisting that the RAN2 and RAN3 Working Groups must first be consulted before any decisions on U-TDOA could be reached in RAN1.

78. The hypocrisy and sham nature of Ericsson's argument, combined with the coordinated actions of other corporate defendants, revealed its true purpose to further delay progress for U-TDOA. When Ericsson's representative held the RAN1 Chair, he had insisted that RAN1 must evaluate U-TDOA. Yet, in its first contribution against U-TDOA after its Chairman position expired, Ericsson insisted on the need for prior input from the RAN2 and RAN3 Working Groups. The improper motive behind the request was transparent: the RAN3 Group was chaired by a representative of Qualcomm, and the Vice Chairman was from Ericsson, both of whom were poised to take the handoff from the

Ericsson RAN1 Chairman. Through their control of the RAN3 Group, the corporate defendants would be positioned to create more roadblocks to consideration of U-TDOA and thereby keep U-TDOA out of Release 9 and LTE standards.

79. Although Ericsson's late submission violated 3GPP rules, and despite its clear improper purpose, the new Chairman of the RAN1 Working Group accepted Ericsson's submission. Unsurprisingly, that new Chairman was from Alcatel-Lucent.

80. Throughout the ensuing series of RAN1 meetings discussing simulations for U-TDOA, the corporate defendants acted in collusion to continue their baseless discrimination against U-TDOA, so as to push U-TDOA standardization to a later release.

- a. The Alcatel-Lucent RAN1 Chairman, with Ericsson's support, denied TruePosition sufficient time to discuss U-TDOA so as to make progress in RAN1 meetings. He insisted instead that TruePosition attempt to make progress offline with Ericsson, fully aware that Ericsson had agreed as part of the conspiracy to exclude rather than facilitate U-TDOA standardization.
- b. U-TDOA standardization for LTE required only minor changes from the RAN2 and RAN3 Working Groups. Ericsson repeatedly insisted in RAN1 that TruePosition could not assume that RAN2 or RAN3 would support the needed changes for U-TDOA when running its simulations. By contrast, RAN1 simulations for O-TDOA had expressly been permitted to presume that all necessary support for O-TDOA would be provided in the RAN2 and RAN3 specifications. The Alcatel-Lucent RAN1 Chairman approved this discrimination.

- c. Over a series of meetings, Ericsson moved to consistently ratchet up performance requirements for U-TDOA to an unreasonably high level. Ericsson insisted that U-TDOA simulations should have to successfully locate mobile phones under conditions far more severe than those required of O-TDOA or by the FCC regulations—indeed, under conditions so extreme that a voice call to 911 would not even connect to the network. The RAN1 Group did not impose such atypical simulation conditions on other LTE positioning technologies, including O-TDOA. Under 3GPP fair due process rules, an objective Chairman would have denied these demands as lacking any technical necessity or basis. The Alcatel-Lucent RAN1 Chairman, however, in furtherance of the agreement among the corporate defendants, approved Ericsson's demands and approved use of this discriminatory treatment to delay progress for U-TDOA over multiple months of meetings.

81. The November 2009 meeting #59 in Jeju, South Korea was supposed to be the final RAN1 Working Group session before the cut-off for including technologies in Release 9. Ericsson and Qualcomm, upon information and belief acting in collusion, attempted to confuse and terminate the U-TDOA evaluation process so as to thwart timely standardization. Long *after* the submission deadline, both Ericsson and Qualcomm submitted simulations skewed against U-TDOA, using sham assumptions of extreme conditions far more severe than the simulation conditions for O-TDOA.

- a. Ericsson submitted its lengthy and detailed paper four days *after* the deadline (at the end of the business day before the meeting), knowing that RAN1 members generally could not digest or discuss such a large set of data without

adequate advance notice or review, and that TruePosition would not have sufficient time to prepare a rebuttal. Ericsson's attack on U-TDOA was pretextual. Its simulations relied on interference levels far exceeding the levels that it promoted as "reasonable" for technology features in which Ericsson had a strong economic interest.

- b. Qualcomm submitted its paper even later, on the day the meeting began. Qualcomm's submission was pretextual on its face. Past Qualcomm simulations for other technologies characteristically were lengthy, detailed, competent, and conscientious. By contrast, its submission attacking U-TDOA was extremely brief, sloppily done, and facially fundamentally flawed. When questioned at the meeting by TruePosition about these obvious errors and inconsistencies, the Qualcomm representative had no answers. Upon information and belief, Ericsson and Qualcomm colluded to submit these sham and pretextual late simulations at this crucial November meeting to justify a decision by the Alcatel-Lucent RAN1 Chairman to defer the U-TDOA work item to future meetings and, thus, push U-TDOA out of Release 9.

The RAN1 Chair from Alcatel-Lucent facilitated these pretextual efforts, pursuant to the conspiratorial agreement with the other corporate defendants. In violation of 3GPP rules, he accepted late submissions; denied TruePosition and others adequate opportunity to review and respond to the submissions; credited these baseless attacks on U-TDOA; and used the submission to further the corporate defendants' concerted efforts to oppose and delay standardization for U-TDOA.

4. *March-June 2010: The Corporate Defendants Keep U-TDOA Out of Release 9.*

82. The Release 9 cut-off was extended to the March 2010 Plenary meeting #47 in Vienna, Austria for various work items, including the corporate defendants' positioning work item and the U-TDOA work item. At that TSG meeting, Ericsson opposed further progress for U-TDOA on the basis that U-TDOA's simulation results were "inconsistent." The only "inconsistent" results were the untimely, biased, and flawed submissions by Ericsson and Qualcomm, skewed by the irrationally-inflated simulation parameters permitted by the Alcatel-Lucent RAN1 Chairman. This controversy had to be presented for resolution by the RAN Plenary Chairman during the Vienna Plenary. TruePosition, with the support of AT&T and others, objected that the corporate defendants' proposed simulation parameters were patently unreasonable. When challenged, Ericsson could neither prove the need for such extreme requirements, nor provide any valid reason why U-TDOA needed to meet more stringent requirements than other comparable work items in LTE.

83. At this March 2010 Plenary, AT&T and T-Mobile USA also supported advancement of U-TDOA past the evaluation phase and into specification work. Ericsson first opposed continuing with U-TDOA standardization at all, then continued to assert the need for more simulations at unreasonably stringent levels. Because of the controversies fabricated by the Ericsson and Qualcomm simulations, and approved by the Alcatel-Lucent RAN1 Chairman, the Plenary Chair assigned the task of establishing an agreed set of assumptions at the RAN1 Working Group level, then running new simulations and coming to some conclusion by September, 2010. As a result of these coordinated manipulations, the corporate defendants succeeded in excluding U-TDOA from Release 9 and pushing it into Release 10, while the O-TDOA work item was allowed yet another extension in Release 9. In June 2010, O-

TDOA was complete and officially included in Release 9. Thus, the first objective of the conspiracy among the corporate defendants was fully achieved.

5. *July-September 2010: The Corporate Defendants' Plot to Push U-TDOA into Release 11*

84. The leadership of all TSG and RAN Groups convene before each Plenary meeting to identify and discuss issues under consideration. In this timeframe, the leadership included representatives from Alcatel-Lucent (as Chairman of RAN1) and Qualcomm (as Chairman of RAN3). Only those in current leadership positions (with a representative from ETSI) are invited and permitted to participate. Notwithstanding that Ericsson months earlier had ended its RAN1 Chairmanship, the Ericsson representative improperly continued to attend planning meetings of the TSG and RAN Group leadership. Upon information and belief, at the September 2010 RAN Plenary #49 in San Antonio, Texas (and again later in Seville, Spain), the corporate defendants used these behind closed doors opportunities to collectively criticize TruePosition's submissions and thereby delay and prejudice the leadership against standardization for U-TDOA. The corporate defendants thereby biased the leadership against TruePosition and in favor of the corporate defendants' positions, to suggest inaccurately that no progress had been made with respect to evaluations of U-TDOA, and to delay progress for U-TDOA.

85. Alcatel-Lucent, while focused primarily on O-TDOA, was considering the development of an implementation of U-TDOA that eliminated the need for standalone LMUs, but did not yet have that capability. TruePosition, however, had consistently manufactured U-TDOA positioning equipment, and so was ready to compete for sales to carriers for 4G networks. After sessions in Athens and Biarritz, Alcatel-Lucent representatives asked TruePosition to agree to delay work on standardizing U-TDOA. Each

time, TruePosition's representative refused the request. Upon information and belief, in furtherance of the conspiracy, Alcatel-Lucent determined to abuse its position as RAN1 Chairman to undercut and further delay evaluation of TruePosition's U-TDOA work item. Thus, in mid-2010, Alcatel-Lucent confidently stated publicly that U-TDOA would be standardized in Release 11—even though at that time U-TDOA had only just been pushed, because of the defendants' coordinated misconduct, out of Release 9 and into Release 10. Indeed, at the September 2010 RAN Plenary in San Antonio, Texas, an Alcatel-Lucent representative admitted to TruePosition that Alcatel-Lucent intended to delay standardization of U-TDOA into Release 11.

86. At that meeting, TruePosition and two major U.S. carriers strongly supported U-TDOA moving forward promptly out of RAN1 to the specification work in RAN2 and RAN3. This would have enabled U-TDOA to remain on schedule for standardization in Release 10. Neither Ericsson nor Qualcomm produced additional accuracy simulations, and so had no empirical basis to oppose U-TDOA standardization. Nevertheless, in furtherance of the conspiracy, at the San Antonio meeting the corporate defendants used their leadership positions and the arguments and numerous controversies they had manufactured to delay a decision on progress for U-TDOA until the next RAN Plenary meeting in December 2010.

6. *October-December 2010: The Conspiracy Succeeds in Delaying U-TDOA Standardization until after September 2012.*

87. At the October 2010 RAN1 Working Group meeting #62-bis in Xi'an, China, Alcatel-Lucent and Ericsson persisted in their coordinated efforts to stymie progress on U-TDOA. TruePosition and others timely submitted and presented simulation results favorable to U-TDOA standardization. To throw new delays into U-TDOA standardization, Alcatel-Lucent sought to standardize for U-TDOA only a technology known as the Sounding

Reference Signal (“SRS”) method. This SRS method required and burdened far more of a carrier’s network resources than the Semi-Persistent Scheduling (“SPS”) method developed and advocated by TruePosition, and which TruePosition simulations proved to be accurate and reliable well within FCC requirements. TruePosition also presented simulations for a combined SPS/SRS implementation that showed more accurate and more reliable results than SRS alone. However, Alcatel-Lucent presented U-TDOA simulation data showing better results for SRS alone than even a combined SRS/SPS implementation. The Alcatel-Lucent results were flawed and pretextual, because it was not technologically possible that SRS alone would perform better than a combined SRS/SPS solution. Based on these manufactured results, Ericsson, Qualcomm, and Alcatel-Lucent opposed any effort relating to SPS standards support. The Alcatel-Lucent RAN1 Chairman attempted to end the discussion by deferring the entire work item until the next Plenary. Rather than further delay U-TDOA standardization, TruePosition placed on the record only an objection to the omission of the SPS method.

88. After TruePosition and others presented their timely-submitted simulations, the RAN1 Working Group Chair from Alcatel-Lucent called on Ericsson. Ericsson “publicly” informed the Alcatel-Lucent RAN1 Chair that Ericsson, just moments earlier, had posted a revised contribution. That contribution had not previously been announced or timely distributed to the Working Group, again in violation of the SSO Rules. None of the other company representatives in the Working Group had been given time to review Ericsson’s late submission. However, upon information and belief, the Alcatel-Lucent Chair had received the Ericsson submission *prior* to its circulation to the Working Group, and *already* had agreed to accept and use the Ericsson document as the basis for further work. Although

Ericsson demurred that it proposed only minor revisions, in reality the document proposed a section outlining a new and controversial “Way Forward” for future evaluations that was prejudicial to, and would significantly delay, U-TDOA standardization.

89. Despite that it violated 3GPP procedures to rely on a document that had been distributed late and without fair notice, the Chair from Alcatel-Lucent, in furtherance of the conspiracy, proceeded to use Ericsson’s proposed “Way Forward” as the baseline for the meeting record. The actions of the Alcatel-Lucent Chairman, in coordination with Ericsson representatives, violated 3GPP rules requiring timely submissions, due process for all participants, and impartiality by a Chairman.

90. As agreed at RAN Plenary #49, in the November 2010 RAN1 Working Group meeting #63 in Jacksonville, Florida, the RAN1 working group compiled a report of the U-TDOA simulation results for submission to the RAN Plenary #50 in December, 2010, where decisions would be made as to whether U-TDOA might be included in Release 10. Ericsson, Qualcomm, and Alcatel-Lucent colluded to manipulate and bias the report. Although a TruePosition representative was the rapporteur responsible for the U-TDOA work item, and thus should have been tasked with creating the report, the Alcatel-Lucent RAN1 Chairman assigned responsibility for the compilation to an Alcatel-Lucent representative. Yet, it was an Ericsson representative who created that compilation, and who knowingly and intentionally included the facially-flawed and thoroughly discredited Qualcomm results. After TruePosition again objected based on the many unexplained discrepancies in the Qualcomm paper, Ericsson removed the flawed Qualcomm data. Because of that “concession” by Ericsson and Qualcomm, TruePosition agreed to withhold its objections to other contentious items. However, after those other items passed, and without the knowledge

of the RAN1 Working Group as a whole, the Alcatel-Lucent RAN1 Chairman permitted the Ericsson representative to reinsert the flawed Qualcomm data, and accepted the table with the sham Qualcomm results restored. As a result, the Alcatel-Lucent Chairman ensured that the RAN Plenary would receive the corporate defendants' two sets of sham results, which they could exploit at the RAN Plenary meeting to further delay or prevent U-TDOA standardization.

91. In the December 2010 RAN Plenary #50 in Istanbul, Turkey, U-TDOA at last was accepted as a work item for standardization. However, because of the controversies manufactured through the coordinated efforts of the corporate defendants in the October and November RAN1 Working Group meetings, the RAN Plenary subjected U-TDOA standardization to two explicit conditions. First, U-TDOA standardization would be pushed out to Release 11 (which, at the earliest, would be completed in September 2012). Second, U-TDOA would be standardized only for the SRS transmission method favored by the corporate defendants, and would not provide either the option to use only the SPS method, or a hybrid of both the SRS and SPS methods.

92. Thus, Alcatel-Lucent, Qualcomm, and Ericsson continued to promote and achieve the objectives of the conspiracy. As a direct consequence of their coordinated efforts, U-TDOA products would not be available, if at all, under the LTE standards until approximately three years after Release 9—in which, absent defendants' conspiracy, U-TDOA would have been standardized. O-TDOA products would have unlawfully obtained at a minimum a three-year head start over TruePosition's technology—a potentially insurmountable lead in the fast-paced race to implement 4G networks in the United States. The corporate defendants obtained additional competitive advantages by limiting standardization only to less effective

SRS implementations of U-TDOA rather than the superior SPS or SRS/SPS hybrid methods. Moreover, the corporate defendants embarked on their campaign to limit any U-TDOA standardization to implementations integrated within RAN equipment, and to exclude standardization of standalone implementations.

93. At the RAN Plenary #50 in Istanbul, Turkey in December 2010, the RAN Plenary reviewed the work item on positioning to determine whether the item could roll from Release 10 to Release 11. The review proceeded actively via email for a day and a half, without any comments from Ericsson. On the final day of the meeting, however, Ericsson recited a long list of proposed changes to the work item text orally, and rapidly, such that TruePosition was unable to record or respond to the comments. Ericsson requested that the Chairman issue the work item with Ericsson's changes and note them as approved, without any further review by the Group. TruePosition objected to the late comments. Although the Ericsson representative had not distributed his comments in writing to the Plenary, he had given them in writing in advance to Alcatel-Lucent. An Alcatel-Lucent representative already had prepared a version of the work item from the written changes provided to him by Ericsson, and asked for their approval. TruePosition's representative again objected, noting that the Plenary had not had sufficient time to review the document, that the changes proposed by Ericsson were substantive and substantial, and that she had comments on Ericsson's changes.

94. The normal course would have been for the U-TDOA item to progress into RAN2, which is chaired by a representative from Samsung. In furtherance of the conspiracy, however, Ericsson and Qualcomm argued at the RAN Plenary meeting that the U-TDOA work item instead should be assigned to the RAN3 Working Group, of which a Qualcomm representative was Chairman and an Ericsson representative was Vice Chairman. The

decision was made at the Plenary meeting that RAN2 would handle the “stage 2” work and RAN3 would take over at “stage 3.” While this was reflected in a comment to the RAN Plenary meeting report draft circulated at the conclusion of the December 2010 Plenary, the Ericsson RAN3 Vice Chairman revealed his intention to fight this assignment. He stated that, after RAN2 makes its decisions about U-TDOA standardization, RAN3 will “fix” them—referring to the corporate defendants’ desired elimination of the standalone LMU option. Thus, upon information and belief at the insistence of Ericsson and Qualcomm, the version of the report released *after* the meeting differed from the circulated draft—and now indicated that this assignment discussion had not concluded, and would continue to be debated at the March 2011 RAN Plenary meeting.

7. *January-July 2011: The Corporate Defendants Attempt to Manipulate RAN Working Group Assignments, and to Prevent Standardization for Standalone LMUs.*

95. Qualcomm and Ericsson (as Chairman and Vice Chairman of RAN3, respectively) opposed transfer of the U-TDOA work item into RAN2 precisely because the RAN2 Chair from Samsung had been open and neutral toward standardization, as the SSO Rules require of all Chairmen. Assignment of the U-TDOA work item to RAN2, under a neutral Chairman, would have hindered the conspirators’ efforts to continue their heretofore successful concerted campaign against U-TDOA. The RAN2 Chairman had accepted proposals to standardize, as options, different positioning methods in commercial use, including in a standalone LMU that could be offered by vendors other than RAN network equipment or handset manufacturers. The RAN2 Chairman had observed that it was logical to include standardization in standalone LMUs, and not just in RAN equipment, in light of the more than 90,000 existing standalone U-TDOA commercial implementations in just the United States. Upon information and belief in collusion with Alcatel-Lucent which had proposed to

preclude all standalone U-TDOA implementations, Qualcomm and Ericsson objected to this statement in collusion. Thus, the corporate defendants sought assignment of the U-TDOA work item to RAN3 specifically so as to stop the potential progress of U-TDOA standardization under a neutral chair, and instead place all decision-making authority squarely in their hands so that they could, in furtherance of the conspiracy, delay or deny standardization of U-TDOA and standalone implementations.

96. The corporate defendants' objective was further amplified at the March 2011 RAN TSG Plenary #51 meeting in Kansas City, Missouri. After the Plenary group already had concluded discussion of all documents in TruePosition's work item and moved to a different agenda topic, the Ericsson RAN3 Vice Chairman asked to return to TruePosition's first document, and challenged whether placement of TruePosition's work item in RAN2 had in fact been decided in Istanbul. After a lengthy debate, the Plenary Chair settled the issue by indicating that the work would start in RAN2, but acceding to Ericsson's virtually unprecedented request that the report specify that RAN3 would review the work of RAN2.

97. During the April 2011 RAN2 Working Group meeting #73-bis in Shanghai, China, Ericsson, upon information and belief acting in concert with Alcatel-Lucent, objected to standardization for TruePosition's technology by criticizing the alleged complexity of supporting standalone LMUs. AT&T, which had purchased tens of thousands of standalone LMUs, prevailed by referring to the successful LMU deployment in the United States, and insisting that it would be logical and beneficial to preserve its option to upgrade LMUs it had acquired and might acquire in the future.

98. In the May-June 2011 RAN TSG Plenary meeting #52 in Bratislava, Slovakia, Ericsson again insisted that RAN3 would review the RAN2 work before RAN2 could include

U-TDOA in its portion of the specification. The Samsung RAN2 Chairman remarked that companies should have sufficient resources to send representatives to complete the work within RAN2, and expressed concern that certain big companies should not use referrals between groups to “play games” with RAN2’s standardization efforts. This was a highly unusual public rebuke against the repeated machinations of the corporate defendants.

8. *August-December 2011: The Corporate Defendants Continue Violating 3GPP Rules to Prevent Standardization of U-TDOA for Standalone LMUs.*

99. In the August 2011 RAN2 meeting #75 in Athens, Greece, TruePosition was scheduled to present an architecture design for U-TDOA. This was a key decision for the meeting. Alcatel-Lucent strenuously opposed TruePosition’s design and wanted to standardize a different architecture that would favor only RAN equipment vendors and prejudice standalone equipment manufacturers. When the work item came up for discussion, Alcatel-Lucent preempted TruePosition’s presentation and proposed sending the architecture decision to the RAN3 Working Group—where Qualcomm and Ericsson hold Chairman and Vice Chairman positions and could thereby delay or undo RAN2’s decision. The neutral Samsung RAN2 Chair and the majority of the Working Group approved TruePosition’s proposed architecture. However, Ericsson reminded the group—in conjunction with Alcatel-Lucent—that RAN3 would “review” all RAN2 decisions.

100. In the November 2011 RAN1 meeting #67 in San Francisco, Ericsson submitted a lengthy contribution that would require all standalone LMU deployments to use separate antennas. All of the 90,000 LMUs currently deployed by TruePosition share the same antenna used by the RAN equipment. There are no technological reasons to require a separate antenna. However, separate antennas for standalone LMUs would substantially increase deployment costs to the RAN vendors’ competitors in the positioning markets, like

TruePosition. Yet again, Ericsson circulated its submission on the day the meeting began—well past the submissions deadline and in violation of 3GPP rules. Nevertheless, in furtherance of the conspiracy, the Alcatel-Lucent RAN1 Chairman refused to enforce 3GPP due process rules and accepted the untimely submission; and Alcatel-Lucent supported Ericsson's proposal.

101. Beginning in September 2011, the corporate defendants manufactured a new issue intended to send U-TDOA standardization back to square one. From the outset, all simulations of U-TDOA were performed using "Wideband" signaling, and all work on U-TDOA standardization has proceeded for nearly three years on the basis that Wideband would be used for U-TDOA. Over the course of several RAN1 and RAN3 Working Groups, beginning in September 2011, Ericsson insisted that U-TDOA should be standardized for less than full Wideband signaling, and that this must be completed before any U-TDOA standardization could progress. This action promoted the conspiracy in two primary ways. First, it would interpose months of additional delay against U-TDOA standardization. Second, it would render standalone U-TDOA implementations less effective than U-TDOA implementations integrated into RAN equipment. A RAN equipment vendor always would have the discretion to use Wideband signaling for positioning technology integrated into its own equipment, no matter what the 3GPP standards prescribe; whereas standalone implementations that needed to interoperate with RAN equipment would be limited according to the standard. Despite TruePosition's proffered compromise to allow Wideband U-TDOA standardization first and consider other solutions in parallel, the Qualcomm RAN3 Chairman deemed TruePosition's U-TDOA work item to be at a stalemate where no further progress could occur, and so informed the RAN Plenary in the December 2011 meeting in

Berlin. These continuing collusive machinations by the corporate defendants have further delayed U-TDOA standardization; indeed, they have brought it to a virtual standstill.

D. The Corporate Defendants Had Motives to Conspire, and Could Only Succeed through Collusion to Violate 3GPP Rules.

102. The corporate defendants had clear motives to conspire to exclude or delay standardization of U-TDOA, and to violate 3GPP's meaningful safeguards, rather than to express opposition unilaterally.

103. Ericsson and Alcatel-Lucent had been unsuccessful in earlier independent efforts to foreclose U-TDOA standardization. In 2004, without coordination among the corporate defendants, efforts to prevent standardization of U-TDOA for 3G failed.

104. The corporate defendants needed to collude to improperly require and maintain secrecy over the December 2008 work item until after the meeting began. Absent agreement to secrecy, TruePosition and other supporters of U-TDOA would have had a full and fair opportunity, as required under 3GPP rules, to put U-TDOA in the same work item or submit a timely proposal for U-TDOA. Given that U-TDOA already had been standardized for 2G and 3G networks, a timely proposed work item for U-TDOA would have had the support of AT&T and others, and would have passed at the same time as the corporate defendants' work item.

105. Because 3GPP policies required 3GPP to carry U-TDOA forward into the 4G standards, and given the proven success of U-TDOA in meeting FCC requirements, the corporate defendants could only prevent U-TDOA standardization by carefully orchestrating their violations of 3GPP rules and manipulations of 3GPP processes. To succeed, the corporate defendants needed cooperation and conspiracy among those who committed the violations with the corporate defendant Chairmen who facilitated the violations. Without the

complicity of the Chairmen of each of these key committees, the corporate defendants' repeated 3GPP violations would have been barred and their efforts to stymie U-TDOA standardization would have failed.

106. By acting collusively, the corporate defendants also could avoid adverse business consequences from their customers such as AT&T and T-Mobile, and from other businesses that relied on U-TDOA. The collective market power of the corporate defendants—which upon information and belief hold more than 85% of the RAN equipment market and 60% of the market for mobile device chipsets in the United States—would be sufficient to resist any repercussions from carrier customers. While no one company alone could have denied AT&T's request to include U-TDOA in the December 2008 work item, the corporate defendants acting together could, and did.

E. The Corporate Defendants Took Actions Against Their Economic Interests.

107. The corporate defendants' efforts to exclude or delay standardization of U-TDOA contradicted their individual economic interests.

108. It was against the economic interests of each corporate defendant to refuse the requests of their major U.S. customer, AT&T, to promptly standardize U-TDOA. Nevertheless, the corporate defendants in combination refused AT&T's requests to include U-TDOA in the corporate defendants' work item in December 2008, and again in March 2009; refused AT&T's requests to standardize U-TDOA for 4G networks on a timely basis; and opposed AT&T's efforts to have available alternatives of positioning technologies and implementations.

109. It was against the economic interests of each corporate defendant to oppose standardization of a technology that had been proven to meet FCC regulatory requirements,

and instead to risk a second failure by relying exclusively on the successor to the previously-failed E-OTD technology.

110. It was against the economic interests of each corporate defendant to support standardization of the more complex O-TDOA technology, which standardization required far greater changes to the 4G network infrastructure than would standardization of U-TDOA.

111. It was against the economic interests of each corporate defendant to insist on standardization limited to the SRS method, which ties up more network resources, reduces the capacity of the carrier's network, and reduces the efficiency of the RAN equipment compared to the SPS or hybrid SPS/SRS method.

112. It was against the economic interests of each corporate defendant to risk the reputational standing and effectiveness of 3GPP, ETSI, and their respective companies, by repeatedly and openly violating 3GPP due processes and rules; by abusing their authority as Chairmen of the 3GPP committees; and by making submissions and taking positions that were pretextual and substantively baseless. To the contrary, it was in the economic interests of each corporate defendant to support the reputations of their companies within SSOs, and to promote the integrity of the 3GPP standards as a global standard.

113. Disputes within 3GPP over the details of implementing U-TDOA—*e.g.*, whether to limit standardization to the SRS signal or whether to enable U-TDOA in standalone LMUs or only integrated in RAN equipment—had no impact whatsoever upon Qualcomm's chipsets or business. But for its agreement to further the conspiracy, Qualcomm had no interest to expend engineering and economic resources creating simulations and voicing objections against U-TDOA. Moreover, Qualcomm risked damage to its reputation by submitting

facially flawed and unsupported simulation results, in stark contrast to the careful and thorough simulation results it had historically submitted with respect to other matters.

F. Liability of 3GPP and ETSI for the Conspiracy

114. 3GPP as an SSO is responsible for misconduct committed by its members vested with and acting under the apparent authority of 3GPP.

115. The anticompetitive and unlawful collusive actions of the corporate defendants as Chairmen of 3GPP committees were committed with and under the apparent authority of 3GPP.

116. 3GPP and ETSI are responsible for monitoring and enforcing compliance with the SSO Rules.

117. 3GPP is an unincorporated association. As an Organizational Partner of 3GPP, ETSI is responsible for any legal liability incurred by 3GPP individually and jointly with the other Organizational Partners. According to a 3GPP publication dated September 2011, “All legal liability and responsibility [for 3GPP] devolves to the Organizational Partners, Market Representation Partners and Individual Members.”

118. Organizational Partners jointly set policy and are responsible for governance of 3GPP. ETSI performs virtually all administrative functions for 3GPP, and acts as the administrative entity for 3GPP functions. Upon information and belief, all of the above-referenced meetings were attended by representatives of ETSI on behalf of 3GPP.

119. 3GPP is an ETSI Partnership Project. ETSI Partnership Projects are part of ETSI’s Technical Organization and, therefore, part of ETSI itself. ETSI is responsible to ensure that its members follow ETSI due process rules and regulations when those members act within ETSI or when they participate in ETSI Partnership Projects, including 3GPP.

120. On at least two occasions, TruePosition representatives alerted 3GPP and ETSI of the corporate defendants' anticompetitive activities occurring within the 3GPP RAN TSG and RAN Working Groups, and the violations of the SSO Rules. TruePosition did so through discussions with the head of ETSI's Mobile Competence Center, who has the primary responsibility of supporting 3GPP, and who also is the ETSI Vice President of ETSI Partnership Projects. Despite this notice, 3GPP and ETSI ignored TruePosition's complaints, took no actions to investigate or remedy these violations, and permitted the corporate defendants to continue violating the SSO Rules and thereby continue the conspiracy.

121. By their failures to monitor and enforce the SSO Rules, and to respond to TruePosition's specific complaints concerning violations of the SSO Rules, 3GPP and ETSI have acquiesced in, are responsible for, and complicit in, the abuse of authority and anticompetitive conduct by Ericsson, Qualcomm, and Alcatel-Lucent. These failures enabled the issuance of Releases 9 and 10 tainted by these unfair processes, and the delay until Release 11, at the earliest, of a 3GPP standard for U-TDOA positioning technology for 4G networks. By these failures, 3GPP and ETSI have authorized and ratified the anticompetitive conduct of Ericsson, Qualcomm, and Alcatel-Lucent and have joined in and become parties to their combination and conspiracy.

122. Unless 3GPP and ETSI act promptly to remedy the continuing anticompetitive effects of the conspiracy among Ericsson, Qualcomm, and Alcatel-Lucent in which they acquiesced and which they ratified, there remains a grave risk that any implementation of U-TDOA, including standalone implementations, effective Wideband implementations of the SRS method, and the SPS method, will be excluded from the 3GPP Release 11 or from any 3GPP standard going forward.

RELEVANT PRODUCT MARKETS

A. The Markets for High Accuracy Positioning Using Signals From Cellular Networks

123. The relevant products in this case are highly accurate positioning technologies that locate mobile devices by making measurements of signals from the cellular network. The two relevant markets for these products are for public safety, and for law enforcement and security purposes. The facts supporting the relevant product market definition are explained below.

124. Less accurate positioning technologies can serve less critical commercial purposes such as navigation and location-based advertising. For example, navigation can be accommodated by global positioning system technologies, such as “A-GPS,” where satellites obtain a clear line of sight to devices within moving vehicles. By contrast to these satellite-based technologies, high accuracy cellular network-based positioning technologies for E-911 public safety and security must provide highly accurate location information in challenging environments, such as indoor locations and dense urban landscapes where an A-GPS signal cannot typically reach.

125. High accuracy positioning capability is a necessary feature where required by government regulation or by a government request for proposals. Certain governments require highly accurate positioning capability to promote public safety and to support domestic security and law enforcement. Customers for positioning technology include wireless carriers and, in some cases, the governments themselves. Therefore, the markets for high accuracy positioning technology can be defined based on whether they are being used for the purpose of public safety or for security and law enforcement.

126. TruePosition competes in the research, development, manufacture, and sale of high accuracy cellular-based positioning technology in both markets, and has successfully sold its LMUs in each of the following markets:

- a. The market for technology that locates mobile telecommunications devices that place emergency calls, such as E-911. This market historically has been defined by governmental regulations that require carriers to provide positioning technology that meets specified performance levels of accuracy and reliability.
- b. The market for technology that locates mobile telecommunications devices for purposes of security and law enforcement. This market historically has been defined by government requirements to provide the capability to locate mobile telecommunications devices so as to track and intercept persons associated with criminal activities, such as acts of terrorism, kidnapping, drug trafficking, and border violations.

127. In each of these markets, governments require the ability to locate mobile devices in various environments including dense urban environments and inside building structures. Satellite-based technologies such as A-GPS are not capable of providing the necessary location capability indoors and in dense urban environments.

128. Because A-GPS alone is not a substitute for U-TDOA or other cellular-based indoor/urban location technologies, and because location positioning capability in indoor/urban environments is necessary to satisfy governmental requirements in both relevant markets, only those technologies capable of high accuracy positioning for mobile

devices in urban environments and indoors constitute the relevant antitrust market in this case.

129. Network-based positioning technologies like U-TDOA have significant advantages over handset-based systems, including O-TDOA, in the market for law enforcement and security purposes. Where some or all of the positioning calculations are performed in the handset, the handset can be manipulated to thwart law enforcement and security authorities by detecting when they are being located (thereby warning the positioning target) and by sending false “spoofed” information concerning its identity and location. Positioning technologies in which the calculations are performed exclusively by the network have none of these flaws.

130. Positioning technology is not intrinsic to the design, manufacture, and sale of RAN equipment. RAN equipment, which is situated on cellular telephone towers, connects the mobile device handset to the mobile phone network. However, high accuracy cellular-based positioning technology requires interoperability with RAN equipment. The relevant markets therefore include implementations in standalone products that interface with RAN equipment, such as the LMUs produced by TruePosition and others, and implementations incorporated into RAN equipment.

131. High accuracy positioning technology also must be interoperable with a specific networking technology. Interoperability must be designed into standards for each networking technology, including in the separate standards for GSM 2G, UMTS 3G, and 4G LTE networks. The O-TDOA and U-TDOA location technologies require some interface with RAN equipment for each networking technology in order to derive the data necessary to determining the location of a mobile device and to communicate that location to the intended

recipient, such as a PSAP or law enforcement agency. TruePosition's standalone LMU positioning products must be provided with an interface to exchange data with RAN equipment.

132. Defendants Ericsson, Qualcomm, and Alcatel-Lucent participate in each of these markets through research and development, manufacture, and sale of products that incorporate location positioning. Ericsson and Qualcomm sell O-TDOA technology for RAN equipment and handsets, respectively. Their products are complementary, in that O-TDOA requires technology to be incorporated in both the RAN equipment and the handsets. Thus, Ericsson and Qualcomm do not compete with one another in the high accuracy positioning markets. Upon information and belief, Alcatel-Lucent intends to sell RAN equipment that integrates into the RAN equipment either O-TDOA or U-TDOA positioning technology.

B. The Innovation Market

133. TruePosition also participates in an innovation market for positioning technology. This market historically has been defined by research, development, introduction, refinement, and enhancement of efficient, accurate, and reliable positioning technology for use in particular physical environments and for specific governmental applications.

RELEVANT GEOGRAPHIC MARKETS

134. The market for high accuracy positioning technology for mobile communications devices for purposes of public safety (*e.g.*, E-911) is defined geographically by those governments that have mandated positioning capability through regulations. The geographic market for high accuracy positioning technology for public safety purposes currently is the United States because it is the only government with regulations that currently mandate high accuracy positioning capability.

135. The geographic market for high accuracy positioning technology for mobile communications devices for purposes of security and law enforcement is global.

136. The geographic innovation market for positioning technology is global.

HARM TO COMPETITION AND TRUEPOSITION

137. The conspiracy alleged herein has harmed and will continue to harm competition in the relevant positioning markets. 3GPP standardization is an absolute prerequisite for competition in the relevant positioning markets. Through the actions of the corporate defendants and the failures of the SSO defendants, the corporate defendants ensured standardization for their preferred positioning technologies in Release 9 of the 3GPP standards in June 2010. Because of the conspiracy, the superior U-TDOA positioning technology has been excluded to date from the 3GPP standards for LTE networks. As a further result of the conspiracy, it remains uncertain whether U-TDOA will be standardized in Release 11, which is the next potential opportunity for standardization, and which will issue, at the earliest, the end of 2012. The defendants' conspiracy therefore has foreclosed competition for superior U-TDOA positioning products, thereby limiting consumer and manufacturer choices, constraining and retarding innovation, and, upon information and belief, enabling the corporate defendants to artificially inflate prices for their positioning technology.

138. The conspiracy alleged herein has caused and is causing continuing harm to TruePosition. Because TruePosition's U-TDOA technology has been excluded from the 3GPP standards, TruePosition has foreclosed from developing, manufacturing or selling its U-TDOA positioning products for 4G LTE networks to wireless carriers in the United States and worldwide. The conspiracy has foreclosed TruePosition from bidding for potential contracts to sell its U-TDOA positioning products, or from upgrading for 4G networks any of

the existing universal LMUs already purchased by TruePosition's customers for 2G and 3G networks. Further, TruePosition has been harmed in its efforts to sell positioning equipment for 2G and 3G networks, inasmuch as TruePosition cannot assure potential customers that the equipment can be upgraded unless and until 3GPP creates a standard for standalone U-TDOA implementations on 4G LTE networks.

CAUSE OF ACTION FOR VIOLATIONS OF ANTITRUST LAW

COUNT I: Combination and Conspiracy in Violation of
Section 1 of the Sherman Act (15 U.S.C. § 1)
(Against All Defendants)

139. Plaintiff incorporates by reference all of prior averments of this Amended Complaint, as if set forth fully herein.

140. Section 1 of the Sherman Act makes illegal "[e]very contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations." 15 U.S.C. § 1.

141. Defendants Ericsson, Qualcomm, and Alcatel-Lucent, in combination and conspiracy among themselves and with 3GPP and ETSI, and with others currently unknown, conspired to restrain competition in the relevant markets for high accuracy cellular-based positioning technology. The restraints on competition caused by this conspiracy included, but are not limited to:

- a. the exclusion of U-TDOA from Releases 9 and 10 of the LTE standard;
- b. the continuing attempts to delay or prevent inclusion of U-TDOA positioning technology in future releases of the LTE standard;
- c. the continuing attempts to exclude standardization for U-TDOA standalone technology implementations from the LTE standard, by restricting any

standardization only to implementations of U-TDOA integrated directly into RAN equipment;

- d. the exclusion of SPS transmission methods by restricting any standardization only to SRS methods; and,
- e. the exclusion of a Wideband SRS method capable of providing consistent accurate locations.

142. The exclusion of U-TDOA from Releases 9 and 10, and the delays in standardization of U-TDOA, were not and could not have been the product of coincidence or mere parallel conduct. To achieve their unlawful objective, the corporate defendants needed to, and did, coordinate their efforts at every crucial stage of the standardization process. The corporate defendants colluded in the initial agreement to exclude U-TDOA from the 3GPP standards, and coordinated their subsequent conduct with the Chairmanships they controlled, in order to deter and delay progress for U-TDOA, including:

- a. jointly agreeing to submit to 3GPP a proposal to standardize positioning technology with the specific intent and agreement to prevent or delay standardization of U-TDOA technology;
- b. submitting the proposal long after the deadline for submissions so as to deny TruePosition and others any opportunity to review or respond or to submit a counterproposal to include U-TDOA positioning, and ensuring—because a co-conspirator chaired the Plenary—they would get away with the violation of due process rules;
- c. accelerating approval of that proposal, and delaying and attempting to prevent consideration of TruePosition's proposed work item for standardization of U-

TDOA, so as to ensure that U-TDOA would not be timely evaluated as part of the same work item with O-TDOA and that O-TDOA would be standardized long before U-TDOA;

- d. imposing unreasonable and unjustified preconditions to standardization of U-TDOA that were not required of other proposed positioning technologies;
- e. imposing unreasonable and unjustified testing and simulation parameters and requirements on U-TDOA far more severe than those imposed on other proposed positioning technologies;
- f. ratcheting up the parameters and requirements on U-TDOA to unreasonable and unjustified levels not imposed on other proposed positioning technologies;
- g. submitting false and pretextual simulation results, long after the submissions deadline, in an attempt to discredit U-TDOA and to prevent its inclusion in Release 9—while advancing their own proposed positioning technologies;
- h. attempting to preclude standardization of U-TDOA for standalone equipment implementations, even though all successful existing implementations of U-TDOA rely only on standalone implementations, so as to eliminate competition from TruePosition and other providers of high accuracy cellular-based positioning technologies;
- i. abusing their positions as Chairs of relevant 3GPP committees so as to give unfair advantages to technologies in which they hold strong patent positions and from which they financially benefit, and to suppress competition from U-

TDOA and other high accuracy cellular-based positioning technologies provided by TruePosition and others; and,

- j. accomplishing their anticompetitive ends by repeatedly violating the rules of 3GPP and its Organizational Partner ETSI, and coordinating these violations with the key Chairmen who facilitated the violations.

As a result of these coordinated efforts, the corporate defendants manipulated 3GPP processes to foreclose timely U-TDOA standardization and give an insurmountable head start to O-TDOA and other positioning technologies.

143. The corporate defendants undertook these actions knowingly and intentionally by exploiting the authority of 3GPP and its Organizational Partner ETSI, and wantonly violating the rules, procedures, and due process requirements of 3GPP and ETSI. Standard setting by 3GPP, comprised of companies with horizontal and vertical business relations, is permitted under the antitrust laws only if conducted in a nonpartisan manner, and in the presence of meaningful safeguards against manipulation of the process by members with economic interests in stifling product competition. *Broadcom Corp. v. Qualcomm Inc.*, 501 F.3d at 309-310. The corporate defendants' collusive abuses of authority and violations of these rules for unlawful exclusionary purposes violate Section 1 of the Sherman Act.

144. Defendants 3GPP and ETSI each had an obligation to ensure compliance with the SSO Rules, so as to ensure fairness of the standard-setting process to all participants and to ensure that the authority of 3GPP and its standard-setting process is not abused for anticompetitive purposes.

145. Defendants 3GPP and ETSI each failed in their respective obligations to ensure compliance with the SSO Rules, and knowingly permitted defendants Ericsson, Qualcomm,

and Alcatel-Lucent to violate these rules, procedures, and due process requirements so as to achieve anticompetitive and unlawful objectives in restraint of trade. They thereby joined in and became part of the illegal combination and conspiracy among Ericsson, Qualcomm, and Alcatel-Lucent.

146. The unlawful and anticompetitive actions of the defendants constitute violations of Section 1 of the Sherman Act *per se*, under a “quick look” standard, and under the rule of reason.

147. The anticompetitive actions of the defendants have caused TruePosition and the public to incur antitrust injury and have harmed competition generally. One or more U.S. carriers have announced the imminent deployment of 4G voice networks which, under FCC regulations, must include positioning technology. Because of the unlawful actions of the defendants, the corporate defendants are able to compete for those sales, while TruePosition and other vendors of standalone U-TDOA-based LMUs are foreclosed from bidding for those sales.

148. Apart from furthering the conspiracy and reaping, through the conspiracy, the ultimate benefits of eliminating competition in the positioning markets, the corporate defendants’ conduct is against their economic interest. They have engaged in this conduct for the sole purpose of excluding competition in the relevant high accuracy positioning markets, and further entrenching their dominant positions in the sale of mobile phone chipsets and RAN equipment.

149. TruePosition has standing to assert claims for this antitrust injury.

150. As a result of the unlawful and anticompetitive acts of Ericsson, Qualcomm, and Alcatel-Lucent, and the knowing failure of 3GPP and ETSI to prevent these acts, Ericsson,

Qualcomm, and Alcatel-Lucent seized unfair competitive advantages, and unlawfully restrained competition from superior technologies and from independent equipment vendors including TruePosition. These acts restrain competition in the markets for highly accurate cellular-based positioning technologies for public safety and law enforcement and security applications, and have retarded innovation for the development of such positioning technologies.

151. If the 3GPP standards for LTE technology do not permit standalone equipment implementations, companies like TruePosition will be eliminated from the positioning markets, notwithstanding the proven superiority of their technology. Elimination of TruePosition thus will eliminate competitive constraints on price increases, and will eliminate competitive impetus to innovate in positioning technology. As a result, mobile carriers, and ultimately public and private consumers of location services, are being denied access to more accurate and more efficient positioning technology, and less expensive RAN and positioning equipment using standalone LMU products offered by TruePosition and other excluded competitors.

152. As a result of the defendants' unlawful and anticompetitive conduct, TruePosition has been damaged in its business and property. The exclusion of U-TDOA and standalone implementations of U-TDOA from the 3GPP standards has blocked TruePosition from bidding for contracts for positioning technology for LTE systems, which it is ready, willing, and able to design, produce, and deliver once the LTE standard that includes U-TDOA for standalone LMUs is released by 3GPP. It also has blocked TruePosition from selling products and services for GSM and UMTS systems inasmuch as governmental agencies and wireless carriers will not invest in standalone positioning equipment for today's

communication technologies that cannot be upgraded to also provide positioning capabilities for future LTE implementations. The exclusion of the SPS transmission method, and the limitation to deploying the SRS method with less than Wideband signaling, from the 3GPP LTE standards further harms competition generally by excluding superior technology from the market, and by harming TruePosition's ability to market equipment using the SPS method.

153. TruePosition already has incurred damage from the unlawful and anticompetitive actions of the defendants, and will continue to incur damage until and unless such actions cease and until and unless U-TDOA technology in a standalone implementation, with SPS transmission, is incorporated into the 3GPP standard for LTE technology. Compensatory damages for the injuries incurred by TruePosition exceed \$150,000.00, the arbitrable amount under the Local Rules of this Court.

JURY TRIAL DEMAND

154. Plaintiff TruePosition demands that all issues of fact in this case be tried to a properly impaneled jury to the extent permitted under the law.

PRAYER FOR RELIEF

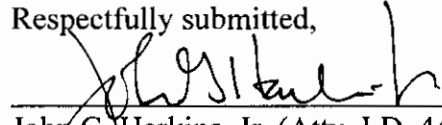
Wherefore, plaintiff TruePosition requests the following relief:

- A. On Count I, against all defendants, jointly and severally:
 1. Monetary damages sufficient to compensate for the antitrust injury to TruePosition in an amount to be determined at trial, but in excess of \$150,000 before trebling;
 2. Treble damages;
 3. Attorneys' fees and costs;

4. Prejudgment interest; and
5. Injunctive relief against further violations by them of Section 1 of the Sherman Act which violations have the purpose or effect to cause injury to plaintiff TruePosition.

B. Such other relief as this Honorable Court may deem just and proper.

Respectfully submitted,



John G. Harkins, Jr. (Atty. I.D. 4441)
Colleen Healy Simpson (Atty. I.D. 84956)
HARKINS CUNNINGHAM, LLP
2800 One Commerce Square
2005 Market Street
Philadelphia, PA 19103-7042
(215) 851-6700

Douglas E. Rosenthal
Seth D. Greenstein
Aymeric Dumas-Eymard
David Golden
CONSTANTINE CANNON LLP
1301 K Street, NW, Suite 1050 East Tower
Washington, D.C. 20005
(202) 204-3500

Gordon Schnell
Alysia Solow
Taline Sahakian
CONSTANTINE CANNON LLP
335 Madison Avenue, 9th Floor
New York, N.Y. 10017
(202) 350-2700

Stuart Salen
Shelby Haverson
TRUEPOSITION, INC.
1000 Chesterbrook Blvd., Suite 200
Berwyn, PA 19312
(610) 680-1000

Date: February 3, 2012

GLOSSARY OF ACRONYMS

For convenience, the following Glossary identifies the technology and organizational acronyms used in the Amended Complaint.

2G	Second Generation wireless communications technology for voice and data service, also known as GSM.
3G	Third Generation wireless communications technology for voice and data service, also known as UMTS.
3GPP	Third Generation Partnership Project, an international standard-setting organization in the telecommunications industry. http://www.3gpp.org
4G	Fourth Generation wireless communications technology for voice and data service, also known as LTE.
A-GPS	Assisted Global Positioning System, a satellite-based location positioning technology.
E-911	Enhanced 911 for 911 calls
E-OTD	Enhanced-Observed Time Difference, a handset-based location positioning technology.
ETSI	European Telecommunications Standards Institute, a European standard-setting organization in the telecommunications industry. http://www.etsi.org
GSM	Global System for Mobile Communications, one of the 2G mobile telecommunications technologies.
LMU	Location Measurement Unit, hardware and software installed at a RAN base station that is used in network-based position location systems.
LTE	Long Term Evolution, a 4G mobile telecommunications technology.
O-TDOA	Observed Time Difference of Arrival, a handset-based location positioning technology.
PSAP	Public Safety Answering Point, a call center responsible for answering calls to an emergency telephone number.
RAN	Radio Access Network
RAN TSG	Radio Access Network Technical Specification Group of the 3GPP

SPS	Semi-Persistent Scheduling, a technology that controls uplink transmissions.
SRS	Sounding Reference Signal, a technology that controls uplink transmissions.
SSO	Standard-Setting Organization
UMTS	Universal Mobile Telecommunications System, one of the 3G mobile communications technologies.
U-TDOA	Uplink Time Difference of Arrival, a cellular network-based location positioning technology.

CERTIFICATE OF SERVICE

I, Evelyn R. Protano, hereby certify that on February 3, 2012, I caused a true and correct copy of the Amended Complaint for Violations of the U.S. Antitrust Laws to be served on the parties below by e-mail and First Class mail, postage prepaid:

Counsel for Qualcomm Inc.

Robert N. Feltoon
Conrad O'Brien PC
1500 Market Street
Centre Square West Tower, Ste. 3900
Philadelphia, PA 19102-2100
rfeltoon@conradobrien.com

Evan R. Chesler
Roger G. Brooks
Gary A. Bornstein
Cravath, Swaine & Moore LLP
Worldwide Plaza
825 Eighth Avenue
New York, N.Y. 10019-7475
echesler@cravath.com
rbrooks@cravath.com
gbornstein@cravath.com

Counsel for Alcatel Lucent

Francis P. Newell
Peter Michael Ryan
Cozen O'Connor
1900 Market Street
Philadelphia, Pennsylvania 19103
fnewell@cozen.com
pryan@cozen.com

Ali M. Stoeppelwerth
Brian Boynton
Wilmer Cutler Pickering Hale and Dorr LLP
1875 Pennsylvania Avenue, NW
Washington, DC 20006
steve.hut@wilmerhale.com
ali.stoeppelwerth@wilmerhale.com
brian.boynton@wilmerhale.com

Counsel for ETSI

Stephen W. Armstrong
Montgomery, McCracken, Walker & Rhoads, LLP
123 South Broad Street
Philadelphia, PA 19109
sarmstrong@mmwr.com

Derek Care
Richard S. Taffet
Bingham McCutchen LLP
399 Park Avenue
New York, NY 10022-4689
derek.care@bingham.com
richard.taffet@bingham.com

William S.D. Cravens
Bingham McCutchen LLP
2020 K Street, N.W.
Washington, DC 20006-1806
william.cravens@bingham.com

Counsel for 3GPP

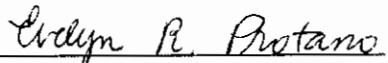
Richard S. Taffet
Bingham McCutchen LLP
399 Park Avenue
New York, NY 10022-4689
richard.taffet@bingham.com

**Counsel for LM Ericsson Telephone Company
(Telefonaktiebolaget LM Ericsson)**

Steven E. Bizar
Buchanan Ingersoll & Rooney PC
Two Liberty Place
50 S. 16th Street, Ste. 3200
Philadelphia, PA 19102-2555
steven.bizar@bipc.com

Arman Y. Oruc
Conor A. Reidy
Simpson Thacher & Bartlett LLP
1155 F Street, N.W.
Washington, DC 20004
AOruc@stblaw.com
CReidy@stblaw.com

Kevin J. Arquit
Joseph F. Tringali
Peri L. Zelig
Simpson Thacher & Bartlett LLP
425 Lexington Avenue
New York, NY 10017-3954
karquit@stblaw.com
jtringali@stblaw.com
pzelig@stblaw.com


Evelyn R. Protano